



POPULATION SURVEY OF PERSONS USING LAKE WATER AROUND ARIYALUR CITY

R. Ramanathan and R. Renuka*

Department of Physics, Government Arts College, Ariyalur-621 713, T. N., India

*Department of Economics, Shrimathi Indira Gandhi College, Tiruchi-620 002, T.N., India

ABSTRACT

Ariyalur city, situated in Tamil Nadu is rich in limestone, and many cement factories are located in this place. Ground water is brackish and drinking water is supplied to some parts of Ariyalur from Coleroon. Hence, people are using available ground water and water from lakes. Six lakes, Thamarai, Cinneri, Chitaeri, Perieri, Theppakulam and Kallankuruchi are important lakes around Ariyalur and all these are contaminated with bacteria. Of these lakes, Thamarai, Chitaeri and Theppakulam were found to be contaminated with harmful bacteria. Hence, a detailed population survey was carried out. The study shows that there are outbreaks of epidemics in persons using the water from the five lakes except Perieri lake, every four months, which goes unnoticed and unreported. The people live below poverty line and take local medicines for treatment of their illness. Remedial measures are suggested in the study to curb epidemics.

INTRODUCTION

Ariyalur is an important town in Tamil Nadu, located in Perambalur district. It is located 250 kms south west of Chennai and 60 kms from Trichy towards north east. Trichy-Chennai railway line passes through Ariyalur. It is also called as 'Cement City' as there are many cement plants in and around Ariyalur. There are many limestone mines in and around Ariyalur and the soil is rich in limestone.

The quality of water in Ariyalur is brackish. From 1987, water is being pumped from Coleroon and supplied to Ariyalur. This supply is limited to certain areas in Ariyalur and many places do not receive this water. Hence, people are forced to use available ground water or lake water. There are six important lakes situated in Allinagaram, Eruthukaranpatti, Thauthaikulam, Manaleri, Valajanagaram and Kallankuruchi. The names of the lakes are Thamarai, Cinneri, Chitaeri, Perieri, Theppakulam and Kallankuruchi respectively which are in and around Ariyalur. Extensive studies were conducted and it was found that all the six lakes are contaminated with bacteria. Thamarai, Chitaeri and Theppakulam lakes were contaminated with harmful bacteria which are most opportunistic (Ramanathan 2006). A population survey was conducted as to how many persons are using the water from these six lakes and the purpose of its use. A questionnaire was prepared and the answers were got from the families using the water, so that it was possible to find whether epidemic like situation is really present in the area due to the bacterial contamination of water.

MATERIALS AND METHODS

Direct survey of the persons using the water was conducted with the help of a questionnaire. The questionnaire consisted of questions about any particular disease or diseases prevalent in the area, its frequency and the mode of treatment. The per capita income and the mode of spending were also questioned.

RESULTS AND DISCUSSION

The population distribution of people using water from various lakes and water use are given in Tables 1 and 2. Of the six lakes, it was found that the persons were using contaminated water except Perieri lake. The people were affected mainly by diarrhoea and fever. Fever, is generally associated with sore throat. The frequency of occurrence of diarrhoea, fever and other diseases caused by bacterial contamination was about four months, affecting 10 to 15 persons in one locality and spreading like an epidemic.

Of the six lakes, water from the two lakes, Perieri and Theppakulam is used only for drinking purpose. Though bathing and washing are not done in this lake, but this lake is still contaminated with harmful opportunistic bacteria. In Perieri lake, where the water is used for all, bathing, washing and drinking, it is less contaminated and is quite suitable for drinking. It was interesting to note that bathing and washing is done near the banks of the lake, so that the bathed and washed water mixes with the water in the lake. This peculiar fact is because of the nature of the soil in and around the lake. In Ariyalur, the physical nature of the soil differs from place to place. There are several distinct layers of soil. The soil is classified as clayey soil, with belts of lime stone layers intervening it. The soil in Perieri lake acts as a natural filter, thus reducing the level of contamination.

Area of the lake is another aspect, which positively influences the quality of water. If the lake is a bigger one, the level of contamination will be less. In this case, Perieri is a bigger one. In other lakes, water is used only for bathing and washing. Of these lakes, Thamarai and Chitai have the presence of harmful and opportunistic bacteria. Using this water for bathing or washing purpose itself is harmful.

The other two lakes, Cinneri and Kallankuruchi, have less bacterial contamination as compared to the above two lakes and can be used for washing purpose. But, if water from these two lakes is used for bathing purpose, the risk of infestation will be high. Water from the four lakes, Thamarai, Cinneri, Chitai and Kallankuruchi are not used for drinking purpose because of their brackish nature.

The per capita income of people of the area is below Rs. 250 per month. The earning members of the family have an average income of Rs. 80 per day. Generally, males are the earning members of the family and all males above the age of 15 years are smokers. If the person happens to be a earning member of the family, he is used to the consumption of alcohol. This habit of spending has a great bearing on the total income of the family, reducing the per capita income. Since, the whole population using the contaminated water live well below the poverty line, they take native medicines for treating illnesses mainly of bacterial origin. Poverty is related to bodily ill health, which is ultimately connected to bad hygiene and alcoholism (Fuchs 2005). Poverty is fundamental reason for the usage of water from the contaminated lakes. Poverty is the root cause for spreading of diseases (Eileen Stillwaggon 1998). From Table 1, it can be seen that the number of persons using such contaminated water is very less, it goes unnoticed and unreported as they never approach a qualified doctor due to their poor monetary status. If the situation turns grave, they are forced to go to the Government hospital for treatment. Only grave or serious cases approach the hospital and this aspect camouflages the actual spread of disease and goes unnoticed.

It is clear from the study that the harmful opportunistic bacteria is the cause for the diseases and spread of epidemics. For improving the conditions of the people of the area, using water from these contaminated lakes, they have to pretreat the water for purification before using it. Pretreatment in

Table 1: Number of persons using water from the lakes with statistics on their gender.

S.No.	Name of the lake	No. of persons using water from the lake	Male	Female
1.	Thamaraieri	107	56	51
2.	Cinneri	106	52	54
3.	Chitaeri	118	60	58
4.	Perieri	84	44	40
5.	Theppakulam	87	44	43
6.	Kallankuruchi	96	49	47

Table 2: Purpose for which water is used from these lakes.

S. No.	Name of the lake	Bathing	Washing	Drinking
1.	Thamaraieri	Yes	Yes	No
2.	Cinneri	Yes	Yes	No
3.	Chitaeri	Yes	Yes	No
4.	Perieri	Yes	Yes	Yes
5.	Theppakulam	No	No	Yes
6.	Kallankuruchi	Yes	Yes	No

the form of heating is possible for drinking purposes but for bathing and washing, it is almost impossible. These areas are not supplied with hygienic drinking water due to various reasons. Hence, it is suggested that hygienic water be pumped to these areas so that the spread of epidemic like situation can be controlled. It can be concluded that for the improvement of the economic status of the persons using water from these lakes, measures are to be taken so that they are able to save a small portion of their earnings by restricting themselves from using money for smoking and liquor. The next important step which has to be taken is properly educating them on hygienic living and finally, regular health check up camps are to be organised so that the occurrence of the epidemic like situation can be effectively controlled.

REFERENCES

- Eileen Stillwaggon, 1998. Stunted Lives, Stagnant Economies, Rutgers University Press, p.7.
 Fuchs, Rachel G. 2005. Gender and Poverty in Nineteenth Century Europe. Cambridge University Press, p.13.
 Ramanathan, 2006. Microbial examination of water in different lakes situated in and around Ariyalur, Tamil Nadu. Nat. Environment and Pollution Technology, 5(2): 261-263.